

Tutorial 6 - Graphs and Hamiltonian Cycles

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We took a look at the following ideas from the text book :

1. **Cut set** : For a given connected graph, a cut-set is a minimal disconnecting set of edges. We also took a look at a few examples.
2. **Hamilton cycle** : If $G = (V, E)$ is a graph or multigraph with $|V| \geq 3$, we say that G has a Hamilton cycle if there is a cycle in G that contains every vertex in V .
3. At Professor Alfred's science camp, 17 students have lunch together each day at a circular table. They are trying to get to know one another better, so they make an effort to sit next to two different colleagues each afternoon. For how many afternoons can they do this? How can they arrange themselves on these occasions?
4. **Theorem** : Let $G = (V, E)$ be a loop-free undirected graph with $|V| = n \geq 3$. If $deg(x) + deg(y) \geq n$ for all nonadjacent vertices $x, y \in V$, then G contains a Hamilton cycle.